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ABSTRACT

Characteristics of the situation in which a fear-arousing communication is received affect the effectiveness of the communication. The influence of situational factors affecting a recipient's interpretation of the arousal induced by communication were investigated with smokers (N=37) who were exposed to a fear-arousing anti-smoking movie. Prior to viewing the movie, subjects were given a placebo pill described as having either arousing, tranquilizing, or no side effects. Following the movie, subjects completed a questionnaire on smoking behavior. Subjects who expected the pill to have arousing side effects reported less intention to reduce smoking than those who expected no side effects. Those who expected tranquilizing side effects reported more intention to reduce smoking than the no side effects group. During the two weeks following the experiment the number of cigarettes smoked decreased in both the tranquilizing and no side effects groups, but not in the arousing side effects group. Although findings about subjects' intentions were consistent with predictions derived from discounting and augmentation principles, behavioral data showed a discounting effect but no augmentation effect. (Author/NRB)

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Attribution of Arousal as a Mediator of the Effectiveness of Fear-Arousing Communications

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Abstract

Smokers who were exposed to a fear-arousing anti-smoking movie reported less intention to reduce smoking when they attributed their arousal to the side-effects of a placebo pill, and more intention when they expected the pill to be tranquilizing than when they expected no side-effects. The self-reported number of cigarettes smoked during two weeks following the experiment decreased in both the tranquilizing and no side-effects conditions, but not in the arousing side-effects condition. The data on subjects' intentions are consistent with predictions derived from Kelley's discounting and augmentation principles, and several explanations concerning the differences between intentions and behavior are discussed. Finally, implications concerning strategies of behavior change are outlined.

Attribution of Arousal as a Mediator of the Effectiveness of Fear-Arousing Communications

In the present paper, we want to explore how characteristics of the situation in which a fear-arousing communication is received affects the communication's effectiveness. Specifically, we are interested in the effects of situational factors that may affect the recipient' interpretation of the arousal induced by the communication.

Kelley's (1971) discounting and augmentation principles suggest that the attribution of an effect to a particular cause depends on the perceived presence of other factors that may either facilitate or inhibit this effect. Specifically, it is predicted that a factor is assigned less weight when other factors that could plausibly account for the same effect are present than when they are not, and more weight when other factors that would inhibit this effect are present than when they are not. The application of this reasoning to fear-arousing communications suggests that the effectiveness of a moderately arousing communication is decreased if its recipients perceive other plausible causes for their arousal, and increased if they perceive the existence of factors that would typically decrease their arousal. While a variety of variables may serve as plausibly facilitating or inhibiting forces in natural settings, the present study followed the procedure of earlier misattribution research (cf. Zanna & Cooper, 1976; Zillman, 1978 for a review) through the use of a placebo pill.

Method

Male students at a German university who identified themselves as smokers in a previous questionnaire were invited to participate in a study purportedly concerned

with the effectiveness of different pills in improving the measurement of galvanic skin response. Thirty-seven subjects (smoking 10 to 30 cigarettes per day, $\underline{M}$ = 16.75) were administered a vitamin pill described as having either arousing, tranquilizing, or no side-effects. To justify the presentation of the fear-arousing communication, we explained that to compare the effectiveness of the different pills, each subject had to be exposed to the same standardized stimuli, and that a movie was chosen for that purpose. Subjects then saw a moderately fear-arousing anti-smoking movie produced for use on television. Following this exposure, the experimenter handed the subject a questionnaire on smoking behavior, adding that "we thought it might be interesting to ask some questions related to the movie as well". One question asked the subject to report the number of cigarettes he wanted to smoke in the future. The difference between this intention and the subject's earlier estimate of his daily cigarette consumption was assumed to indicate the subject's intention to change his smoking behavior. This intended change, expressed as a percentage of the subject's estimated pre-experimental consumption, is used as the dependent variable.

After the collection of the questionnaire, the subjects were partially debriefed. The experimenter explained that the subjects had actually participated in two unrelated studies, namely a study concerned with the measurement of galvanic skin response (as explained prior to the experiment), and a second study, concerned with the long range effects of the movie. Purportedly, both studies had be combined for economic reasons. Finally, subjects were asked to record the daily number of cigarettes smoked over a period of two weeks. They received Deutsche Mark 2.50 ($ 1.50) for that task and were handed a booklet to attach to their cigarette packs as a recording help.

To control for the effects of this self-monitoring task, a control group of another twelve subjects was neither administered the pill nor exposed to the movie, but only answered the questionnaire and completed the recording task.

Following the return of the recording booklets subjects were completely debriefed.

Results

The first row of Table 1 shows the mean percentage change in the number of cigarettes subjects intended to smoke under each experimental condition. A one-way analysis of variance shows a significant effect of conditions on subjects' intention to reduce smoking, F (3,40) = 7.87, $p < .001$. Between group comparisons indicate that subjects who saw the movie and expected no side-effects of the pill intended to reduce their smoking by 32.7 %, as compared to only a 2.8 % decrease intended by subjects who did not watch the movie ($p < .05$). On the other hand, subjects who were administered what they believed to be a tranquilizer intended to reduce their smoking by 63.1 %, and this intention is significantly higher than the intentions reported in both the no-side-effects and control conditions ($p < .05$). Subjects who were ostensibly administered a pill they thought would arouse them, however, intended to reduce their smoking by only 10.2 %, a percentage that is neither significantly different from that reported under the no side-effects condition, nor from that reported under control conditions.

The second row of Table 1 shows the mean percentage change in the reported number of cigarettes smoked during the two weeks following the experiment.[1)] A one-way analysis of variance indicated a significant effect of conditions on subjects' reported smoking behavior, $F(3,40) = 3.30$, $p < .03$. Subjects who expected arousing side-effects reported smoking an average of only 3.6 % less than their pre-experimental estimate. This change is not significantly different from that of control subjects who were not exposed to the movie, and who reported a 5.2 % increase in smoking. On the other hand, subjects who expected no side-effects reported a decrease of 32.1 %, while those who expected tranquilizing side-effects decreased their smoking by 32.4 %. Thus, while both groups differed significantly from the control and arousing side-effects conditions ($p < .05$), the prior difference in intention between those groups was washed out.

Discussion

The data on subjects' intention to change their smoking behavior suggest that subjects utilized their perceived arousal along with their explanations of it in evaluating their reactions to the message, and that this mediated their expressed behavioral intentions. These data are in line with predictions derived from Kelley's (1971) discounting and augmentation principles. That is, subjects who attributed their arousal to side-effects of the pill were less influenced by the movie than subjects who attributed their arousal to the latter source. Moreover, subjects who expected the pill to be tranquilizing were more influenced than subjects who expected no side-effects.

The behavioral data, on the other hand, show a discounting effect but do not show an augmentation effect. That is, subjects who presumably attributed their arousal to side-effects of the pill reported a smaller decrease in smoking than subjects who attributed their arousal to the movie. However, subjects who expected tranquilizing side-effects reported about the same decrease in smoking as subjects who expected no side-effects, and the prior difference in intentions was washed out. This result suggests that, while subjects' intentions were affected by their arousal, their actual behavior, following the decrease of their arousal, was more affected by the information remembered. Two processes may contribute to this effect. On the one hand, it seems reasonable to assume that subjects who attributed their arousal to the pill paid attention to their body symptoms rather than to the movie, whereas subjects who perceived the pill to have either tranquilizing or no side-effects paid attention to the movie to determine the causes of their unexpected arousal. The resulting difference in the amount of anti-smoking information received and retained may account for the lack of difference in the behavioral data between the tranquilizing and no side-effects condition as well as for the difference between these and the arousing side-effects condition.

On the other hand, subjects who remember that they were aroused may be more likely to remember factors contributing to this experience than factors presumably inhibiting this experience. For this reason, the information that the pill had presumably tranquilizing side-effects may have lost influence faster than the information that the pill had arousing side-effects. Future research should include measures of recall for both the communication presented and the situational variables introduced to test these speculations.

Alternatively, the lack of a difference in the post-experimental smoking behavior of subjects who expected no or tranquilizing side-effects may simply reflect a ceiling effect. That is, it is hard to stop smoking,and subjects in the tranquilizing side-effects condition may have had overly optimistic estimates of their ability to stop quickly, despite their intention to do so. Thus, the reduction of about 30 % reported by both experimental groups may be near asymptote, not allowing an additional difference between subjects expecting no or tranquilizing side-effects.

What are the implications of these data and the speculations outlined above for the use of fear-arousing communications as a strategy for changing behavior? On the one hand, the data illustrate that the presence of other, less threatening factors that might plausibly cause the recipient's arousal has a disastrous impact, because they will allow the recipient to discount the message. Therefore, care should be taken to eliminate other factors that might be perceived as inducing arousal. On the other hand, the introduction of factors that should typically inhibit arousal only increased subjects' intentions. In this regard, one may speculate that their positive effect on intentions might increase recipients' willingness to immediately participate in additional activities, e. g., to sign contracts on behavior change, or the like. Without such additional attempts, however, the introduction of typically inhibiting factors seems to have little long range effect.

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Footnotes

1) Subjects reported larger decreases in the number of cigarettes smoked during the first than during the second week. A repeated measures analysis of variance, however, indicated no treatment by time effect ($F < 1$). Therefore, the mean change over both weeks is used in the analysis.

Table 1

Change in Number of Cigarettes Smoked in Percent *

	No side-effects	Arousing	Tranquillizing	Control
Intended	-32.7_{b}	$-10.2_{b,c}$	-63.1_{a}	-2.8_{c}
Reported	-32.1_{a}	-3.6_{b}	-32.4_{a}	$+5.2_{b}$

* Number of cigarettes smoked prior to the experiment = 100%. Percentages in the body of the table represent intended or reported reduction relativ to prior smoking.

Values in the same row not sharing the same subscript differ at $p < .05$, Duncan test.